

# SOUNDTOXINS

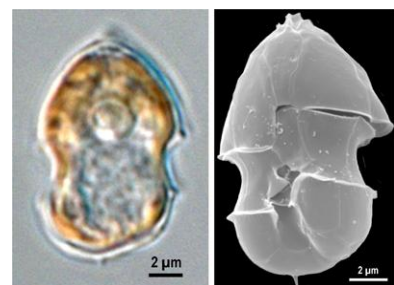
Thanks to all who attended the SoundToxins workshop on April 20 at the NOAA Northwest Fisheries Science Center (NWFSC)! We had a great turnout of new and experienced volunteers and it was a great opportunity to hear about some of the new species of concern in the Puget Sound, get an update on current research in the Puget Sound, spend some time looking under the microscopes and providing some feedback on how the program is going and how to make it better. Below is a summary of what happened at the workshop and some additional information that hopefully will be helpful as the sampling season starts. Once again, we want to thank you for all your work – SoundToxins would not succeed without you!

## Be on the lookout! New species of concern

### *Azadinium spinosum*

Professor Urban Tillmann (Alfred Wegener Institute, Germany) and Dr. Mike Twiner (University of Michigan) gave talks on a new HAB species of concern in Puget Sound - *Azadinium spinosum*. *Azadinium spinosum* is a small autotrophic dinoflagellate that produces the azaspiracid (AZA), a toxin responsible for the human illness azaspiracid poisoning (AZP), causing chills, headaches, diarrhea, nausea, vomiting, and stomach cramps. AZP was first reported (1995) from blue mussels originating from Killary Harbour, Ireland and since then, the toxins have also been identified in mussels throughout western Europe, northwestern Africa, and Canada. Recent analyses of samples collected by ORHAB and SoundToxins participants yielded positive results for AZA, suggesting that *A. spinosum* is present on the WA coast and in Puget Sound.

Cells are small (12-16  $\mu\text{m}$  length and 7-11  $\mu\text{m}$  width) with a large nucleus located posteriorly and single chloroplast. Please keep an eye out for *Azadinium* as you are looking at the phytoplankton samples.



Images by Urban Tillmann



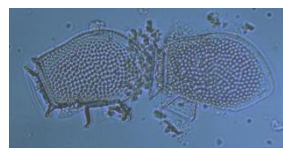
Image by B. Krock

*Azadinium spinosum*

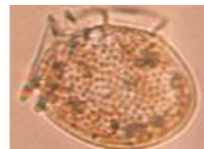
In order to identify if the AZA toxin is present, we will be working with our volunteers at Quartermaster Harbor, Sequim Bay and Fort Warden to put out SPATT bags (small discs with resin that accumulate the toxin) for weekly measurements for AZA. Molecular analysis of water collected at the same time will help confirm the presence of *A. spinosum*. Many thanks to Karlista Rickerson, Lohna O'Rourke, Jean Walat, Stephanie Oliveira, Louise Walczak and Kateri Schmerler for your help on this extra sampling!

### *Dinophysis*

*Dinophysis* species capable of producing diarrhetic shellfish poisoning (DSP) are present in the Puget Sound, but there is very low awareness about the presence in shellfish. Though the symptoms can be difficult to diagnose since they are common to many gastrointestinal illnesses, there is concern for the long-term impacts of exposure since these toxins are potential tumor promoters. Jerry Borchert (WA Department of Health, DOH) provided some results of sampling for DSP in water and shellfish during the summer 2010. There were a couple hotspots, including Sequim Bay which had a maximum concentration of 250,000 cells/L, but only trace levels of toxin were measured in shellfish. Both the DOH and NWFSC scientists Keri Baugh and Dr. Leslie Moore will be measuring DSP in Puget Sound this year to better understand when and where these toxins are present. The action level for sampling shellfish will be when 7,500 *Dinophysis* cells/L are observed or when in 'common' abundance.



*Dinophysis acuta*



Images by Brian Bill